

COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

Published as a confidential industry newsletter ten times per year by electronics and technology author *Robert B. Cooper*. All reports source checked for accuracy prior to publication; readers are cautioned to conduct their own verification of data prior to formulating business judgments based upon reports here. Data of unverified authenticity is nominally so-labeled as a guide to reader caution. The publisher draws upon 34 years of leading-edge electronic-industry media experience but can be mislead by those with clever agendas. Entire contents copyright 1994 by Robert B. Cooper; when 'lifting' material please be courteous enough to credit source such as "As reported in *Coop's Technology Digest* for" CTD accepts no advertising, nor source payment for publication of material here. Those with self-serving agendas may at their own risk add CTD to press release mailing lists; decisions as to whether we use your material is ours alone. Subscription and contact information appears at the bottom of this page.

May 27, 1994 / ISSUE 94-05-09

-IN THIS ISSUE-

OLD BUSINESS- MORE TRANSPONDER COSTS

SATELLITE Transponders at 36% of Intelsat, 60% PanAmSat?-p.2

NEW BUSINESS- A MATTER OF SOME URGENCY

PROPOSED Revisions in Radiocommunications Act 1989 Seek Public Comments-p.7

SATELLITE CABLE SEMINAR 94 / FIRST EVER FOR NEW ZEALAND

September 15-17 in Hastings/ attendance limited to 110 by venue-p.9

TECHNOLOGY BYTES / INDUSTRY NEWS UPDATES

PanAmSat discusses programmer plans-p.15; Satellite TV religion for NZ?-p.16; Horizon to horizon satellite watch-p.17; Japanese satellite to send digital to NZ?-p.19; Multimode digital chips being shipped-p.20; UK coming to difficult digital TV decision-p.21; Video in the round/circular TV screen-p.22; REALLY fast forward-download 100 minute movie in 5 minutes-p.22; KIWI Cable spending \$14.8m to expand-p.25; Copyright Tribunal 'may' hear SKY/ESPN controversy-p.25; BCL quietly turns on "cable"-p.26; TV3 expansion doesn't please everyone-p.28; OMI-GOD/Hacker's guide to busting SKY-p.29; MOC update on pending changes-p.29

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COOP'S TECHNOLOGY DIGEST / SUBSCRIPTION INFO

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ROBERT B. COOPER, P.O. Box 330, MANGONUI, FAR NORTH, (New Zealand)

COOP'S TECHNOLOGY DIGEST

May 27, 1994 / Volume 94-05

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SOME OLD BUSINESS

CTD for April (9404) reported on the state of Intelsat transponder pricing and negotiations, and, explained the multiple layers of bureaucracy a potential user must slice through before reaching the status of "transponder renter." In this issue, page 16, we expand that report by noting the current quoted rates (before serious negotiation) from PanAmSat.

There is a third entrant in the (South) Pacific satellite game and while some might consider them to be less stable than Intelsat or PanAmSat, no serious student of available satellite space can totally dismiss RIMSAT. They have a wonderful method of attracting your attention: They simply quote prices for transponder rental which are as much as 50% lower than Intelsat or PanAmSat.

You may recall Tongasat (CTD: 9308; p.17 and 9309;p.14 and 9311;p.20 and 9403;p.20), the Kingdom of Tonga backed firm that caught several Pacific Island nations "sleeping" (including New Zealand). Tonga, the nation, with professional advice discovered that Clarke Orbit Belt geostationary satellite "parking spaces" were available for the asking. Following the same trail the US, Australia and other nations blazed, Tonga (the nation) planted its "flag" on Clarke Orbit positions of 70, 83.3, 130, 134, 138, 142.5 and 170.75 east. International treaties agree that satellites in the orbit belt shall maintain 2 degree separation as a minimum when they are using the same frequency band (i.e., all on C, or all on Ku).

A number of entities, including a few governments, objected after Tonga filed for these locations because while there have been no negotiated "rules" in the relatively new satellite game, there have been "standards and practice." One of these allows that a country may file for a location that it intends to use; it should not file for locations it cannot use. There should not be "warehousing" of orbital positions.

Tonga, a tiny country of approximately 98,000, has little (actually, no) justification for more than one orbit slot. Tonga's advisor in this policy area, *Dr. Matt Nilson*, is ex-Comsat/Intelsat and is well respected for his technical knowledge of satellites. He understood, better perhaps than anyone else in the satellite game in the late 80s, that the "rules" for engagement of orbital parking spots were not cast in stone. He convinced Tonga's leaders to use their "sovereign status" as a nation to file for orbital spots, and in return the Kingdom granted Nilson's newly formed Tongasat an exclusive 50 year franchise to use those orbital spots.

Tongasat never planned to build, launch and operate its own satellites. Rather it assumed the role of 'landlord' and went looking for tenants for these parking spots. Last July the first serious

confrontation occurred when a Tongasat tenant, a firm known as Rimsat, moved a semi-retired Russian C band satellite to 134 east. Rimsat had "leased" 134 east from Tongasat but when Rimsat's satellite arrived, they found the spot occupied. The satellite already in place at 134 was another semi-retired bird, this one from Indonesia. Both Rimsat and (Indonesia's) Palapa Pacific operate in C band, and the confrontation followed.

As CTD reported in our March (1994) issue (p.20), the problem was negotiated to a satisfactory conclusion. One of the terms of the agreement is that the details of the negotiated settlement are not to be announced. However, that Tongasat won the engagement is clear from observing how Palapa Pacific basically disappeared after the settlement.

Nilson's Tongasat, and Tongasat's tenants Rimsat and a second would-be satellite operator called Unicom Satellite Corporation, have a tenuous hold on the orbital locations originally filed for by Tongasat. Rimsat at 134 has been operational for approximately 10 months relaying a Tamil language television service (SUN TV) into southern India and Sri Lanka for approximately 4 hours per evening. Rimsat has signed an agreement with the now partially-privatised Russian satellite industry for a minimum of three Russian satellites. The Rimsat at 134 east represents one "level" of this contract: Using semi-retired, secondhand Russian (mostly C band) satellites at bargain basement prices. When the Russian satellites run out of proper station-keeping fuel, and begin to drift around outside of their normal drift limits, the Russians usually consign the old birds to the scrap heap. Originally the old satellites were simply left behind; now they are moved to a new location and rented for a pittance to a firm such as Rimsat.

Having use of a semi-retired Russian Gorizont satellite is several steps below owning and operating a brand new Hughes satellite but immensely better than semaphore flags. The Russians are desperate for foreign (read US) currency and this is one way for them to earn some. The satellite operator, Rimsat in our example, has a toe hold in the satellite business and Tonga has some "rent" for its claimed orbital position.

The next "level" of Rimsat operation involves their contracting for Russian "Express Class" satellites. These are brand new design satellites that are being built to Intelsat specifications. In fact, Intelsat has contracted to lease a number of these new satellites from Russia and in further fact Intelsat is scheduled to "take delivery" (in orbit after Russian launch) of the first of their new Express satellites next month (June). It will be parked at 95 east where its' ten C band and 2 Ku band transponders will become a part of the Intelsat (Indian Ocean Region) system.

Rimsat plans to take delivery of their own, first, Express this October-November. They will take over the satellite when it is "on station" at (a) 170.75 east, or, (b) 134 east. In June of 1995 Rimsat will take delivery of their second Express satellite and it will go to whichever of those two orbital spots is not occupied by the October-November 1994 launch.

134 east is of course where Rimsat presently operates Gorizont (17) with the SUN TV service. And 170.75 east is ... well, for reference, it is 1.75 degrees east of 169.0 and if that number eludes you, this is where PanAmSat will place PAS-2 sometime late in June. Further, 170.75 east is also 3.25 degrees west of Intelsat 701 (at 174 east).

PanAmSat is not happy about this positioning. In fact, PanAmSat was originally scheduled to be located at 168 east and had they retained that spot, Rimsat at 170.75 would have been a safe distance from PanAmSat. Then for "competitive reasons" PanAmSat changed their plans and slid 1 degree further east, "putting the squeeze" on Rimsat plans. And because Rimsat is a US corporation, PanAmSat also asked the United States authorities to intercede. PanAmSat wants Rimsat "denied landing rights;" roughly equivalent to being in a sailboat at sea and being denied the legal right to come ashore in your home country. By denying Rimsat US "landing rights,"

PanAmSat hopes to keep Rimsat from selling its services to North American users; the space-age version of a man without a country.

So there are a number of reasons why anyone who might be tempted to deal with Rimsat would be wary. Here is a group of people named Sternberg and Habib operating out of offices in Naperville, Illinois (and the Philippines) who are leasing Russian satellites and parking them in orbital spots claimed by the 'Kingdom of Tonga.' And in their only successful operation to date, Rimsat has leased television transponder time to a renegade Indian subcontinent telecaster who is originating his programmes from a hut outside of Moscow and sending them back to the Indian Ocean on a slightly less than space-worthy drifting Russian satellite. All of the ingredients for a Tom Clancy novel are in hand.

Should a would-be user of satellite transponder space take these guys seriously?

Perhaps for the best of reasons; they have the best financial deal "in town," if your needs happen to fit with their capabilities. The numbers first.

Russian satellites have always been known for their "grunt." That's satellite talk for being stronger than a pile of spent jock straps on the floor in the change room following an All Black test. CTD went to Rimsat's *Michael Sternberg* (*), their Chief Operating Officer, to learn the details for their new Express satellites that will be parked at 134 and 170.75 east. Sternberg asked Rimsat's Chief Engineer *Edmund Habib* to explain the "grunt" to us.

Habib: "The Express satellite is equipped with three major beam sizes. They are a Quasiglobal beam with about 31.5 dBw at beam centre; a Zone Beam of approximately 5 by 10 degree beamwidth which is moveable after launch with about 38.5 dBw at beam center and a spot beam of about 5 by 5 degree beamwidth and about 49 dBw at beam centre."

Let's interpret those numbers:

a) Quasiglobal at 31.5 dBw beam centre: If you lived at beam centre, you'd find it would take a 3.5 metre dish to produce 'perfect pictures' with an average grade receiver.

b) Zone Beam at 38.5 dBw at beam centre: Now you'd have 'perfect pictures' on a 1.5 metre dish at C band.

c) Spot Beam at 49 dBw: On a scale of one to ten this is akin waking up from a sound sleep to find every used jock strap from the entire All Black team piled on your pillow. In terms of antenna size, a soup can outfitted with a small wire probe, and shoved inside of a jack strap suspended from your guttering would produce perfect pictures.

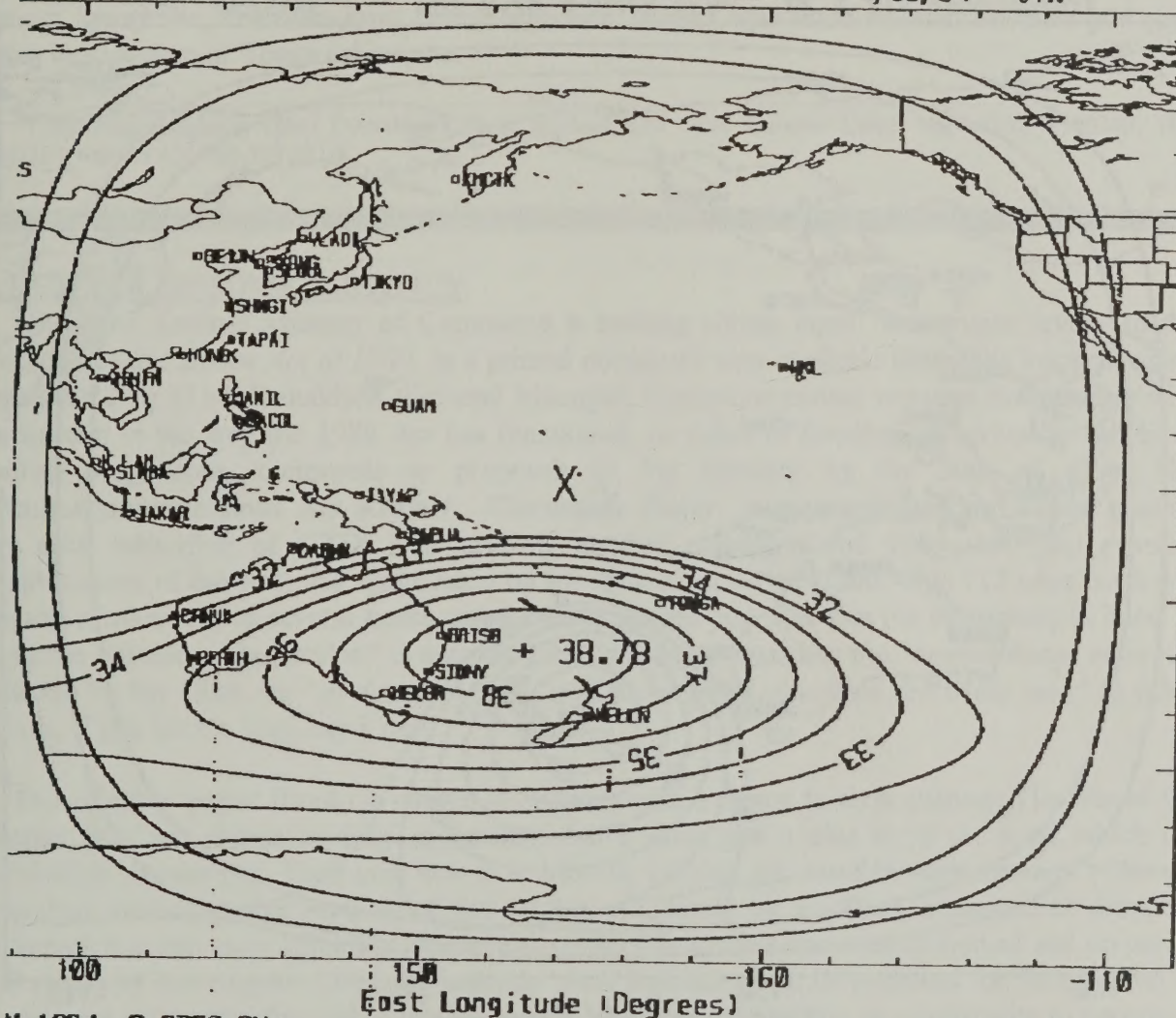
This is the kind of service that awakens TVNZ top echelon people at 2AM in a cold sweat. You could literally drive down the highway with a 45cm by 45cm "patch antenna" on the roof of your car and "watch" pictures from a 49 dBw C band footprint. Needless to point out, the "home satellite terminal" for this kind of signal level could be dirt cheap; under NZ\$600 for a home; around \$100 more than a SKY Network viewer now pays per year for SKY.

That's "one" of the Rimsat numbers. What about the "big" one;" the cost per year for the right to use a satellite channel?

Michael Sternberg: "The rates for a 36 MHz bandwidth (i.e., one full analogue transponder) depends on the nature of the transponder (power, steerability, etc.). Nominally, the list price of these transponders run from (US)\$1.3m-1.8m annually with a discount for multiple year commitments." Let's put those numbers into perspective.

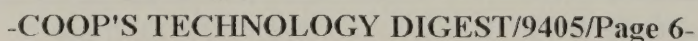
A 36 MHz wide transponder has the capacity to carry no fewer than 4 compressed digital video channels of broadcast quality video. That means TVNZ's TV1 and TV2, plus TV3 and one more New Zealand service, could share the 36 MHz and deliver television to all of New Zealand (and more: see maps here) for NZ\$2.275m per year; \$568,750 per TV channel per year. As an aside,

Rimsat 170.75E Moveable (N-S) Zone Beam Coverage - C Band 15 watts
 Beam centered at 165 deg E Long and -30 deg Lat. (RIMSAT EXPRESS)
 Transponder #8,10/14,16 Peak EIRP = 38.8 dBw 4/08/94 c1A



RIMSAT "Express" from 170.75 East with 38.5 dBw footprint over New Zealand; note all Australian cities to Perth are within 35 dBw (3m dish size) or better, as well; same price!

Suppose a New Zealand user doesn't want an entire transponder? Sternberg: "We can accommodate a partial transponder for a five year term if we can match your needs to that of



another user. We suspect we can uncover such a 'partner' given the existing lists of requests for service on our satellite. In principle, not a problem."

So to complete the list of possible sources for satellite transponder time rental, you now have Rimsat. If you turn to page 16 in this issue you will see a comparison between Intelsat (174 east) and PanAmSat at 169 east. The numbers in that chart are for 9 MHz bandwidth, or 1/4th of a standard 36 MHz wide transponder. To save you flipping back and forth here's how they line up:

- a) Intelsat - \$844,087 per annum
- b) PanAmSat - \$500,000 per annum
- c) Rimsat - \$300,000 per annum with additional discounts for multiple year contract

And now you can see for yourself why any serious planner for a New Zealand satellite system cannot ignore the American guys from Naperville, Illinois who lease Russian satellites and park them in Kingdom of Tonga orbit spots.

*/ Michael Sternberg, Chief Operating Officer, Rimsat, Ltd. (834 Raintree Drive, Naperville, IL 60540; TEL 708-357-7420 / FAX 708-357-8819) 6819

A MATTER OF SOME URGENCY

The New Zealand Ministry of Commerce is seeking citizen input in a major review of the *Radiocommunications Act of 1989*. In a printed document now available for public inspection and comment (**) H.M. Donaldson (General Manager, Communications) requests that anyone with an interest in the way the 1989 Act has functioned, or failed to function, is invited to submit in writing suggestions, comments or proposals to the Ministry by the 30th of June. The "Radiocommunications Act Review - Discussion Paper" is recommended and urgent reading for each subscriber of CTD. It is unlikely another review of the 1989 Act (and possible modifications of the Act) will again come up for discussion before 2000. This 115 page book will require a minimum of several hours careful study before you take pen (or computer) in hand to write the Ministry. The "review" is searching for comments regarding the "market-based reforms" initiated by the 1989 Act "to determine how well these (Act) objectives are being met." In other words, if you have a beef, say it now.

The Ministry 'paper' (book) is written in chapters with a theme to each chapter. The title of the chapter may not always be fully explanatory but it does give a clue as to the areas which the Ministry is researching. Their goal here is to take the existing act, consider all comments received, and then decide whether sections of the existing act should be modified, expanded or dropped. Although it seems quite ambitious, the Ministry hopes to analyze comments received and prepare a full report by this August. From this analysis draft legislation will be prepared for introduction to Parliament as an amending bill to the 1989 Act. All of this affords you an opportunity to become a part of the amending Bill creation process.

*/ Request **RADIOCOMMUNICATIONS ACT REVIEW: Discussion Paper** by writing *H.M. Donaldson*, General Manager, Communications, Ministry of Commerce, P.O. Box 2847, Wellington or FAX on 04-499-0797 or telephone *Philip Toye* on 04-474-2994

The 'chapter' titles suggest the following areas of study are underway:

- 1) Property Rights as they relate to management rights and the method now used to define 'title' to the spectrum.
- 2) Interference Rights as it pertains to defining management rights and as it allows one management rights holder to request protection from another management rights holder.
- 3) Allocation of Rights as it pertains to competing applications for spectrum use and determining the criteria for deciding how spectrum might best be used by competing interests.
- 4) Competition in the marketplace is covered in a chapter which ponders whether areas where conflicts arise should continue to be dealt with through application of the Commerce Act, or should there be specific regulations within the Radiocommunications Act to deal with (anti)competitive behavior?
- 5) Registration of rights is discussed questioning whether the present Registrar of Frequencies is the "*most efficient approach to (registration of) rights under the act.*"
- 6) Radio Apparatus sale in the marketplace is another area of concern. While it may be an offense to manufacture and sell a device that operates illegally, or which causes interference to users of the spectrum, how should these regulations be enforced and what penalties should be applied to offenders?
- 7) Privacy of radiocommunication transmissions, an area of growing concern as each year sees a larger percentage of all "private" (such as telephone) communications being carried by radio, ponders if radiocommunication users should be given the protection of privacy legislation.

CTD readers with an interest in the inevitable future applications of compressed digital video (CDV) will find much to think about on pages 45 to 50 and in particular pages 47-49. Although the discussion paper stops just short of using the phrase "digital television" it describes rather perfectly the impact of changing the transmission parameters of a (television) signal and raises a number of engineering and economic questions impacted by such changes. At a point where VHF television license Management Rights are coming close to being finalized (CTD: 9401, p.2) it may well be that this discussion is appearing too late to have an impact on the granting of licenses to TVNZ and TV3.

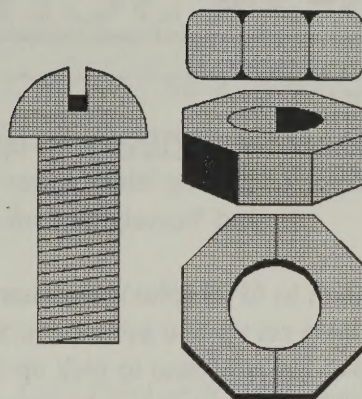
If this were a 'book review' we could not recommend Radiocommunications Act Review except as a library reference piece. This is the sort of dry, dull, uninspired reading which 7th form writing instructors do their best to encourage students to correct before arriving at university. You are especially urged not to save this for reading following a heavy meal; the plot is poor and you will probably nod off before reaching the bottom of the first page.

Alas, if you earn money to buy your meals from within the telecommunications industry you are well advised to promptly acquire your own copy and set aside a full half-day for quiet, uninterrupted study of its contents. Somebody out there is planning to make major changes in the Radiocommunications Act of 1989 and if you want to ensure that you continue to have money to eat, you can ill afford not to be a part of this "review" process.

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ANNOUNCING



SCS-94

SATELLITE-CABLE-SEMINAR

New Zealand's first-ever professional two-day seminar for those interested in exploring the future of Direct-To-Home (DTH) satellite, and, cable television. Satellite-Cable-Seminar 94, co-hosted by CTD Publisher *Robert B. Cooper*, is scheduled for September 15-16 at a venue in Hastings. Immediately following the conclusion of SCS-94, the *Electronic Technology Services Association* (ETSA, Inc.) will hold their (26th) Annual Conference at the same Hastings venue.

- On Site operational home-satellite style dishes displaying new PanAmSat, Intelsat, Optus and other satellite signals.
- "Live" Exhibit Hall satellite and cable hardware equipment exhibits from prominent world-class suppliers; the first such exposition in New Zealand!
- Eleven "nuts and bolts" seminar sessions plus 12 hours of "live-on-videotape" sessions from North American seminars.

AND THE BAD NEWS

Because of venue space limitations -

**ONLY 110 ATTENDEES CAN BE
ACCOMMODATED.**

THE SCS-94 SCHEDULE



**WEDNESDAY
SEPTEMBER 14**

SATELLITE ANTENNA set-up day (12noon onward); registrants are invited to turn up 'early' to see how satellite dishes are assembled, and 'boresighted' on the Clarke Orbit Belt.

12 noon to 6PM (plus): Seminar satellite dish assembly

3PM to 6PM: Exhibit hall display table set up and interconnection of dish 'feeds'

4PM to 6PM: Registration desk open for attendees to pick up their attendance packages, badges



**SCS-94
VIDEO
SCHEDULE**

7PM/ *ERA OF DBS* (Direct Broadcast Satellites)

SATELLITE TV BASICS

SATELLITE TV BASICS II

ERA OF DIGITAL VIDEO

8PM/ *"It's Your Signal Too"*

8:30/ *Home Satellite TV's Fifth Birthday* (2 hour HBO telecast)



**THURSDAY
SEPTEMBER
15**

DAY ONE of SCS-94 seminars and exposition schedule

8 - 9AM / Registrants may pick up registration materials, badges at

centre registration desk

9AM / HOME SATELLITE SYSTEM BASICS: How the satellite system works, what each component segment of the home receiving systems contributes to package.

10AM/ *Exhibit Hall Preview* - tea and coffee served in exhibit hall

11AM/ PRESENT & FUTURE SATELLITES: Overview of the satellites now available, those planned for the Pacific Ocean Region (POR) by the end of 1997.

12Noon - *Lunch break* (attendees will be on their own, *exhibit hall will be open*)

1PM/ HOME SYSTEM INSTALLATIONS: Advice on dish assembly, tracker, feed selection and installation.

2PM/ HOME SYSTEM INSTALLATIONS II: Advice on receiver selection, set-up, LNB trade offs, evaluating receiver options.

3PM/ *Exhibit Hall Open* - tea and coffee served in exhibit hall

3:30/ SATELLITE TV TEST EQUIPMENT: What it does, how to use it, is it necessary?

4:15/ SATELLITE TV PROGRAMMING: How programming is packaged, distributed, and 'sold' to DTH viewers; and the part played by satellite system sellers/installers.

5PM/ *Exhibit Hall Open* (until 6:30PM)

NOTE: SCS-94 reserves the right to modify schedule prior to event

-COOP'S TECHNOLOGY DIGEST/9405/page 10-

*Schwartz
Nigel
+ Gary H?*
Bob
*Bob Schwartz
Gary H?*
*Schwartz
Gary H?*
Bob
+ Gary H?



**SCS-94
VIDEO
SCHEDULE**

7PM/ *SATELLITE NAVIGATION - Finding The 'Birds'*
8:15/ *PLANNING the DTH Installation*
9:30/ *HINTS & KINKS For Improved DTH Installations*



**FRIDAY
SEPTEMBER
16**

DAY TWO of SCS-94 seminars and exposition schedule

8-9AM/ Registration desk open for badges, conference packets

9AM/ **THE BUSINESS OF SELLING HOME DISH SYSTEMS:** Promotions, demonstrations, guarantees

BOB
GRAY

10AM/ *Exhibit hall open / break - tea and coffee served*

10:45/ **NEAP SPACE RESEARCH:** *The University of Auckland 7 metre Dish Installation*

- BRIAN
OLIVER

Brian Oliver, Technical Officer, Audio-Video Centre describes the detailed planning and implementation of New Zealand's first trans-cultural university research tool

12N/ *Lunch break* (attendees will be on their own, exhibit hall will be open)

TONY DUNNETT
THE INTERNATIONAL
ORBIT BASE

1:30/ **CABLE TV BASICS:** Technical basis for community wide wired cable TV distribution systems (including SMATV) and their interfacing to satellite services

BOB
GLYN BOSTON

3PM/ *Exhibit Hall Open - tea and coffee served in exhibit hall*

3:30/ **FINANCING FOR CABLE TV:** Computing system investment cost and calculating 'returns' for a community antenna system

- BOB
- GLEN BOSTON

4:30/ **CABLE & SATELLITE WRAP-UP:** Panel discussion, floor questions

5PM/ *Exhibit Hall Open (until 6:30PM)*

SEL, GAR, NIGEL, BOB



**SCS-94
VIDEO
SCHEDULE**

7PM/ *ARTHUR C. CLARKE Profile*

7:45/ *Spectrum Analyser Use in DTH Systems*

9PM/ *Technical Tour of RCA Satellite Uplink Control Centre*

10PM/ *Private Uplink Challenge (to approximately 11PM)*

-IMPORTANT NOTICE-

PRE-REGISTRATION IS MANDATORY. IF YOU ARE NOT AMONGST THE FIRST 110 TO PRE-REGISTER, YOU WILL BE ASSIGNED A 'WAITING LIST NUMBER' TO FILL ANY CANCELLATIONS THAT MAY OCCUR.

SCS-94 / SUPPLEMENTAL ATTENDANCE INFORMATION

This is **IMPORTANT** information you must understand; we will process all applications for attendance following these 'rules.' Failure to follow the rules may cause you to miss a registration position and result in your not being able to attend.



RULE No. 1

Each registrant will receive a written confirmation of their pre-registration, and a coded pre-registration number. The first 110 pre-registrants will be guaranteed seating and a place at SCS-94. Numbers 111 and up will be placed on a standby waiting list and will be notified if vacancies occur. Register today.



RULE No. 2

When completing the pre-registration form, you **MUST** indicate (as requested): (a) Are you a member of ETSA?, (b) Will you require motel lodging? (c) The nights you will require lodging, (d) Will you bring a VCR to tape SCS-94 Video training materials (more about this shortly)? Totally complete the application.



RULE No. 3

The registration form you are about to fill out is for SCS-94 Attendance **ONLY**. You will be contacted separately with additional forms for hotel pre-registration, after 1 July. **HOWEVER**, the type of room/ accommodations you will require is a part of your form. Failure to complete this part is a mistake.



RULE No. 4

SCS-94 Video Programming. Approximately 12 hours of seminar/lecture material(s) from North American satellite TV seminars and conferences will be "transmitted" to attendees. IF you are amongst those staying at the 'Host Motel' (something we cannot guarantee you at this time; some people will be assigned to other nearby motels) this programming will be sent to you in your room through the motel's MATV system on a locally unused (VHF) channel. You may tape this material for later review or to use for your own staff training by bringing with you a VCR capable of plugging into the motel's MATV system. **YOU** will be responsible for making your own in-room connections and returning the motel's MATV outlet (feeding their TV set) to its original condition when you leave (bringing a splitter and patch cable plus fittings makes good sense as well). IF you are **NOT** assigned to the host motel, a room at the host motel will be provided where you can place your VCR and connect it to a (perhaps massive) "amplified splitter network" which SCS-94 will provide. In this case, SCS-94 cannot be held liable for any damage to your VCR nor loss of your unit nor the loading, timing, rewinding, operation of your machine. We provide the seminar tapes as a service, but assume no liability for your interfacing to the taped programming nor system failures beyond our reasonable control. And remember - 12 hours of blank tape for recording!

SCS-94 PRE-REGISTRATION

NOTE: If you delay in returning this form, you may miss our No. 110 cut-off

PLEASE REGISTER THE FOLLOWING PERSONNEL TO ATTEND SCS-94:

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Mailing address (supply only ONE regardless of number of registrants):

_____ Telephone: _____

LODGING:

We -

_____ WILL require lodging for the nights of September ____/____/____

Type of room: _____

Number of rooms: _____

_____ will NOT require lodging

ETSA MEMBER?

_____ Check here if you are PRESENTLY a member in good standing for ETSA, Inc. Do NOT mark UNLESS your firm belongs to ETSA.

INTENDED ARRIVAL?

_____ I/we intend to arrive for SCS-94 by 6PM on Wednesday September 14

_____ I/we intend to arrive for SCS-94 Thursday morning September 15 by 9AM

_____ I/we intend to arrive for SCS-94 Friday AM September 16 by 9AM

VIDEOTAPING?

_____ I/we intend to bring a VCR to tape video material offered

_____ I/we do NOT intend to bring a VCR to tape video material offered

FEES:

_____ Check here ONLY if current ETSA member; you will send NO FEES.

_____ Check here if you are NOT a member-firm of ETSA:

- a) Compute fees as \$125 per individual registered. Make out cheque to Robert B. Cooper for \$125 times number of individuals attending and mail promptly to:

Robert B. Cooper, P.O. Box 330, Mangonui, Far North

(Refund policy: Full refund if cancelled by 01 August; 50% after this date.)

SCS-94 QUESTIONS?

BEFORE JULY 02:

Contact Robert B. Cooper at /

FAX: (0)9-406-1083

TEL: (0)9-406-0651

AFTER JULY 01 (Dealing with any subject OTHER THAN lodging):

Contact Nigel C. Clough at/

FAX or TEL: (0)4-293-2058

AFTER JULY 01 (Dealing ONLY WITH lodging, AFTER you have WRITTEN confirmation of attendance):

Contact Fred Ritchie (ETSA) at/

FAX: (0)9-483-2656

TEL: (0)9-489-8175

**RETAIN THIS SHEET OR A COPY FOR
PANIC REFERENCE!**

TECHNOLOGY BYTES

...BITS AND BYTES YOU MAY HAVE MISSED IN THE RUSH TO MAKE A BUCK ...

May 27, 1994 / ISSUE 94-05-09

SATELLITE TV

PanAmSat Australian representative *Cynthia Dickens* reports that if PAS-2 holds to June 22 scheduled launch date there should be test signals from 169 east by the week of August 7-13. Dickens suggests that the C-band portion of this satellite will be "*heavily used within six months of turn-on*" largely occupied by programming services which hope to reach CATV and SMATV (satellite master antenna) users throughout the Pacific and south-eastern Asia. Dickens believes PAS-2 Ku-band use will be "*more used for intra-national (within a country) linkups*" and does not rule out that China may be a user. PAS-2 has switchable Ku-band beams on board; between New Zealand/Australia and China. If Chinese customers for PAS-2 develop, the South Pacific region use of the 'switchable beam' will be lost. Which programme sources will be using PAS-2? Dickens says only the firms who have reserved transponder space know for sure and, "*Anything else is pure speculation.*" She points out Turner and Viacom have, between them, 'more than one-dozen possible cable oriented programming channels' and that Turner has already announced plans to customise a mix of The Cartoon Network and their TNT channel for south-eastern Asia. "*It would not surprise me to see this feed on PAS-2 as well.*" PanAmsat configures their satellites on C-band such that there are 12 transponders each 54 MHz 'wide' and 4 that are 64 MHz wide. Analogue users in Europe have traditionally broken 54 MHz bandwidths into a 27 MHz pair each fitting in two separate TV programmes per satellite transponder. Pan-AmSat's PAS-1 satellite over the Atlantic now has two of the 54 MHz wide transponders each carrying 6 digital format (CDV) TV programme channels from the US into South America. Either format, a pair of analogue programmes each in 27 MHz, or, up to 6 digital format signals each occupying 9 MHz of space, is probable for PAS-2. One of the early announced PAS-2 customers, ABS-CBN from the Philippines, also has 54 MHz of transponder space available. The firm that owns ABS-CBN has been quoted in Manila newspapers as planning a Pan-Pacific-Asia programming services, two channels initially in analogue, later to be updated to multiple digital programme channels. Because ABS-CBN is 'new' to the game their presence has attracted only passing interest. Dickens feels this is a mistake; "*They plan some very exciting cable and direct to home services.*" The countdown is underway; next stop the Clarke Orbit Belt at 169 east.

TNT and Cartoon Networks on Pacific satellite? **CTD** reported in April (9404:p.28) Indonesian DBS service will be carrying these two (Ted) Turner services. We also reported new Australian CTS service (9404:p.20) plans to carry the same services. More details are now available. As reported (9404:p.28), TNT (Turner Network Television) and Cartoon Network will be merged into a single programme channel at Turner Hong Kong facility from tapes flown to Hong Kong from USA. The service will basically consist of cartoons and children's programming in the daytime,

-COOP's FEARLESS SATELLITE PROGRAMMING FORECAST-

This continuing update weighs the likelihood that specific satellite-delivered TV programme services will be available to New Zealand users. This listing does not deal with whether a specific service will be encrypted or 'free-to-air,' only whether it is likely to appear on a satellite which a C or Ku band dish of modest size (3M at C, 2m at Ku) can receive here. This listing changes with each issue of **CTD** as the elements that enter into making these forecasts change, modify, or are clarified by the potential programmers. Percentage is likelihood of happening.

100%: CNN (508 + PAS-2), ESPN (508), ABS/CBN (Philippines PAS-2). **75%:** Australian Sky Horse Racing (508), Viacom MTV/Nickelodeon/VH1 (PAS-2), Murdoch UK Sky Prime Sport/Star Plus (PAS-2); **50%:** Discovery Asia (PAS-2), BBC World Service (PAS-2), Fox Cable International (PAS-2), Country Music Television (PAS-2), Comedy Central (PAS-2); **25%:** Trinity (USA religion PAS-2), USA Network; (PAS-2), TNT/Cartoons (PAS-2).

SATELLITE TRANSPONDER COSTING UPDATE / PanAmSat PAS-2-

CTD for April (Volume 9404-08) featured an analysis of transponder costs for Intelsat C and Ku (band) transponder space, using a 9 MHz bandwidth as a measurement standard. Readers are reminded that in a 9 MHz bandwidth a complete cable-TV-grade entertainment programme can be compressed and transmitted. CTD gave current, recently quoted, rates from Intelsat Ku band as an example in our report (p.13). Current C band rates were also quoted (in less detail) on page 25 for April. Readers are also reminded that Intelsat requires a performance bond to be posted as a guarantee on contract fulfilment, and because New Zealand satellite users contract through Telecom (New Zealand International) all charges also incur a GST charge.

We are now able to provide a direct comparison with PanAmSat rates. PanAmSat offers only Non-preemptible ten-year leases, but requires no performance bond. GST may or may not apply as well. Comparing PanAmSat PAS-2 (9 MHz of bandwidth) to Intelsat Non-preemptible (9 MHz of bandwidth) annual rates in US\$ we find:

| SAT-ELLITE | C band Base \$\$ | OSA Oncost | GST | C band total | Ku band base \$\$ | OSA Oncost | GST | Ku band total |
|-----------------|------------------|------------|---------------|------------------|-------------------|------------|---------------|------------------|
| Intelsat 174d E | \$615,000 | \$135,300 | \$93,787 | \$844,087 | \$640,000 | \$140,800 | \$97,600 | \$878,400 |
| PAS-2 169d E | \$500,000 | None | Possibly none | \$500,000 | \$666,667 | None | Possibly none | \$666,667 |

You are cautioned to consider the detail discussed in CTD 9404 pages 2-19 before forming conclusions from only this numerical comparison. Intelsat: A.B. McClellan (FAX: 64-(0)4-473-1399; PanAmSat: Cynthia Dickens (FAX: 61-2-256-2150).

movies at night (centred on Hong Kong time; 4 hours earlier than New Zealand). This service will then be uplinked to Apstar 1 (signal levels over New Zealand in the 16 to 18 dBw region; 12 metre dish size). The CTS Sydney facility plans to take the channel off-satellite at Darwin, videotape the service, and transport the tapes to Sydney for day-delay play in the southern Australia cable systems. Turner sources insist the services will not be available on PAS-2, will not be fed live from North America to Hong Kong via satellite and will therefore not be available to New Zealand cable TV systems or private dishes (when service initially begins late this year).

Unexpected scrambling of Intelsat (180) United States ABC television (News One) network feeds (CTD:9404,p.26) on TR16 may be partially (or totally) explained by announcement that "ABC affiliate and international news service has launched a 24 hour news feed effective April 25." Transponder 16 carries many ABC (US) programmes, as well as sports and other special feeds to (and from) NHK. Sudden appearance of scrambled video April 06 has upset many private dish owners throughout the Pacific. ABC and NHK have also just signed a renewed long term agreement to exchange programming and technical expertise; NHK says ABC is helping it to create a new "international television programming service" as well.

Satellite rumour of the month (and clearly so-labeled): A US religious telecaster (Trinity Broadcasting is mentioned) is negotiating for transponder space (PanAmSat PAS-2 is mentioned) to bring 24 hour 'family/religious' programming to the South Pacific where small antennas (3 metres and down in size is mentioned) will allow individual (in home) viewing or connection to a religious/family (UHF) TV network here (fill in your own name here).

Filipino television will be delivered to the United States via satellite in the latest commercial enterprise. Several million Filipino transplants now live in North America and Benpres Holdings will package current and older Filipino television programming for distribution to the USA via satellite. There, cable systems will carry the programming to subscribing homes. The concept is not new; more than a dozen countries now package programming for satellite delivery to the United States, including Greece, Turkey, Spain, France, China and Dubai.

Auckland University was to release tender documents May 20 calling for bids on a 7+ metre dual-axis satellite drive receiving system. The university will use the dish to allow language students and others to 'directly participate in foreign cultures' via reception from a variety of satellites covering the Pacific, Asia, and North America. Funding for the system was approved in principal by the University Equipment Committee in December and a subcommittee formed to oversee the system design. As it went to tender, the dish will track the Clarke orbit belt from horizon to

UNUSUAL C BAND SATELLITES OBSERVED FROM NEW ZEALAND

Clarke-orbit tracking dishes in New Zealand have reported these satellites as observed recently. Dish size indicates observation antenna but (a) does not suggest smaller antennas might not also produce results, and (b) does not suggest broadcast-quality reception with the dish sizes shown. See explanation below.

| Satellite Position | Known Inclination | NAME | Strongest Frequency | Other Frequencies | Dish Size Used | Polarisation | Notes |
|--------------------|-------------------|---------------------|---------------------|-------------------|----------------|----------------------|------------|
| 102.7E | +/- 0.2 | Gorizont 25 | 3,675 | 3,725/ 3,875 | 4m | RH-C | SECAM, PAL |
| 105.5E | +/- 0.05 | Asiasat 1 | 3,860 | many | 10m | 3860/linear vertical | PAL |
| 107.7E | +/-0.06 | Palapa B2R | 4,000 | 3,850/4,120 | 4m/10m | linear horizontal | PAL |
| 112.9E | +/-0.01 | Palapa B2P | 3,860 | 3,900/4180 | 4m/10m | linear horizontal | NTSC, PAL |
| 134.3E | +/-2.9 | Rimsat | 3,725 | | 3m + | RH-C | PAL |
| 174.4W | +/- 0.01 | TDRS-5 | varies | | 10m | linear Hz | Typ. NTSC |
| 139W | +/- 0.01 | SATCOM C5 | 4,140 | 4,108/4,160 | 10m | linear | non-video |
| 137W | +/-0.01 | SATCOM C1 | 3,860 | 3,780/3,820 | 10m | linear | NTSC |
| 133W | +/- 0.01 | Galaxy 1R | 3,900 | 3,980/4,160 | 10m | linear | NTSC (1) |
| 131W | +/-0.01 | SATCOM C3 | 3,840 | 4,000/3760 | 10m | linear | NTSC |
| 125W | +/-0.01 | Galaxy V | 4,020 | 3,860/3,760 | 10m | linear | NTSC |
| 120W | +/-0.01 | SPACE-NET S1 | 4,040 | 4,120/4,160 | 10m | linear | NTSC (2) |
| 116.7W | +/-0.01 | Morelos | 3,980 | | 10m | linear | NTSC |

(1) / (2): YES - with a 'modest sized' dish you can direct-view some (DOMSAT) Asian service and North American satellites. Satellites that are 'shaded' and listed in bold face are especially good targets for any 3 to 4 metre or larger Clarke orbit belt tracking dish capable of switching feed polarisation from Intelsat's right-hand circular to linear vertical, linear horizontal. HOWEVER- **none** of the satellites will display purely vertical, or horizontal signals. Our reception from US DOMSAT birds, for example, is via 'side lobes' of their antenna patterns and the polarisation will be unpredictably 'skewed' for a number of reasons. Fully search through linear vertical to linear horizontal and all in-between 'skews' to find the 'plane' that works best for you. Three especially strong targets are Galaxy 1R and 3,900 MHz, Spacenet S1 and 4,040 MHz and Satcom C3 at 3,840 MHz. Galaxy 1R at 133 west has as many as 10 separate TV transponders 'watchable' on a 7.3m dish in New Zealand (although most are Videocipher encrypted).

Not listed here: 'normally received' Intelsats at 174,177,180 E and 177W. Reader reports are welcome and encouraged as a means of increasing knowledge about the limits of reception from New Zealand.

horizon covering satellites located between 100 degrees east and 115 west including inclined orbit satellites. The dish will be installed at the Taranaki Campus site and will include three separate professional grade satellite receivers, various audio (only) narrow band receivers, automated satellite tracking software to allow continuous tracking of inclined orbit satellites, and a variety of standards conversion units to allow PAL format reception from NTSC or SECAM services. Tests conducted for the University by *Brian Evans* (*Pacific Antennas*: 09-424-0841) in late April demonstrated how even a smaller dish (4m used in test) produces useful quality signals from various international satellites, including Russian Gorizont (102.7 east). Although Auckland University may be pioneering this service in New Zealand, elsewhere on the planet universities now routinely install similar satellite systems to provide real-time foreign language services to (language) departments. Political science departments are also heavy users of this approach finding daily transcripts of foreign capital newscasts an essential part to being current with changing views worldwide. Auckland University's system hopes to be fully functional by September 1st and in the next phase would like to install a distribution system to allow multiple channels of television programming to be transmitted around the campus 'in real time' to the many University departments who would find the information useful for their studies.

Consumer TV antenna company AIMCO (Auckland) held a satellite TV seminar in Auckland in late April with a crowd of TV aerial installers and stockists estimated at more than 100 on hand. The unexpected size of the turnout has been taken as an indication of trade interest in the projected late-1994 launch of a 'home satellite TV dish industry' in New Zealand.

Discovery Channel, a 24 hour documentary satellite delivered cable service often compared to 'National Geographic on video,' has signed distribution agreements with cable and MMDS distributors in Taiwan, the Philippines and Indonesia. The channel has more than 2,000,000 subscribers now in Asia-Pacific. The channel is distributed presently on Palapa B2P but is scheduled to move to Apstar 1 by September.

Reuters will use NTL digital video package to allow it to transmit Reuters Financial Television TV programme reports along with present data/text service. Combining two services will enhance Reuters' strong position in financial services industry. Financial centres will optionally subscribe to the new service consisting of a pair of 15 minute financial news bulletins, and series of five minute "flash reports" for NZ\$260 per month. This service is not available in South Pacific at this time.

Headline News, one of the Turner services delivered via satellite, will now go directly from satellite to the PC screen on work station computers throughout the USA. The new system takes satellite feed, enters it into central office computer and then through windows programme (or equivalent) desk workers can place CNN Headline News in small on screen corner or other position for display while user is working on other programmes.

Orbit Satellite Television and Radio Network, a Middle east funded and targeted 16 programming channel service due to begin operations early in June, has signed a contract with Comsat (Intelsat) for the delivery of US programming to Italy. There, ESPN plus CNN, CBS, ABC, NBC, the All News Channel, Discovery, CNNI, E! Entertainment and BBC WSTV will be repackaged with movies and other programming feeds to be sent to Arabsat. The 'service area' covers all of the Middle East as well as northern Africa to satellite antennas in the under 3m category. Orbit projects 50,000 subscribers by the end of this year, will add an encrypted movie channel shortly. The packaged service will sell advertising directed at Middle Eastern and North African viewers and hopes to attract NZ\$350m in advertising revenues annually within 3 years.

Turner Broadcasting is putting together a satellite delivered programming package using transponder space leased from Indian Insat-2B satellite owned by Indian government.

TCI cable giant in US says its new digital television compression and transmission centre near Denver will package multiple separate programme channels into 'bundles' and then deliver the composite bundles to international satellites for distribution worldwide. TCI sees its centre as becoming worldwide packager of TV programming such that a single 36 MHz bandwidth satellite transponder will carry one or more 'programme bundles' to authorised cable operators virtually worldwide.

MTV Asia and Murdoch operated Star TV have parted company, only one month after Star TV cut loose of BBC WSTV in similar move. MTV Asia was never MTV-USA product, rather Star paid NZ\$875,000 annually plus percentage of advertising revenue to USA firm that holds title to logo and programming format. Star TV's replacement for MTV-Asia is not announced but a heavily Hindi music service is likely with emphasis on the Indian subcontinent marketplace. MTV-USA will now establish its own production and uplinking facilities, probably wait until Apstar 2 launches at end of this year to reappear on satellite in Asia. Announced plans suggest new MTV-Asia will include encrypted Mandarin language channel for Taiwan, Singapore and China, second English language (plus some Hindi music) channel for Southern Asia that will not be encrypted..

BSkyB, Murdoch owned, contributed NZ\$446m to parent News Corporation 9 month financials ending March 31. Asian satellite service Star TV continued to lose money in same period. Overall News Corp profit for period was reported as NZ\$1,239m.

Star TV has signed a deal to take 1,000 hours of Chinese language programming from Hong Kong production house ATV for the next three years, and to jointly produce 40 hours of new programming per year. Star needs new Chinese programming to improve the market penetration of his satellite service into Chinese language regions.

France had 550,000 households equipped with satellite TV receiving systems at end of 1993; an increase of 175,000 systems during the year. Of interest, only one-fifth of the system owners subscribe to the French language service. French TF1 network will launch the first French language 24 hour all news channel (La Chaine Info) June 24. Two additional French satellite channels, one for women and the second for home shopping, are expected by the end of this year.

Indian satellite TV programmer Zee TV took in 11% of total Indian television advertising revenues in 1993; NZ\$350m total. 23% of India's 30 million TV equipped homes are plugged into satellite fed cable or satellite dishes.

European DBS satellite Astra 1D scheduled for September-October launch was originally scheduled as an in-orbit 'spare.' Plans have changed; the satellite will be used to provide additional analogue channels for the rapidly expanding European home satellite marketplace, and two of its transponders are being reserved for early users of digitally compressed video.

Canada will launch first Canadian based DTH (direct to home) Ku band satellite service in April 1995. A 90 channel programme universe is planned with 45 initial programmes. Canadian Anik E1 or E2 will be home to the new digital service.

Eutelsat reports successful completion of tests using a 36 MHz transponder for the simultaneous transmission of an analogue TV programme channel and the same programme in digital format. Using equipment supplied by NTL, the tests open the way for programmers to simultaneously transmit in analogue and digital on the same transponder, while analogue receivers are replaced with digital units.

DirecTv, the new 75/150 programme channel digital delivery direct to home Ku band service in US, has opened 55,000 square foot production facility near Denver. The new facility is a NZ\$345m investment, can simultaneously uplink as many as 216 programme channels to twin DBS-1 and DBS-2 satellites.

OPTUS SBS feed on transponder 5 (On A3 bird, SE beam for Victoria, New South Wales and Tasmania) is nominally marginal into New Zealand on 3m (plus) range dishes. Since approximately mid-May the SBS feed has been unexplainably so strong as to be 'perfect' on under 1m size NZ dishes. No Optus comments to press time.

Russian launch May 20 was possibly for satellite to be leased to RIMSAT and scheduled for parking at 142.5 east. Keep an eye there - possible test signals 3,725 plus 3,825 and 3,875 shortly.

Japan has reconfigured JSAT Ku band satellite scheduled for launch in August 1995. The 28 Ku, 12 C transponder satellite is scheduled to be at 128 east. On Ku, one beam will place 55 dBw over all of Japan while a second will place 43 dBw over much of eastern and south-eastern Asia. A third Ku beam will place 43w dBw spotted on New Zealand and Australia plus India in a split pattern. On C band, a hemispheric beam with 37 dBw will favour the area north of the equator from Hawaii to India. The recently announced change assigns eight transponders, apparently all on Ku, to "digital video use." The market plan for the 8 digital transponders, carrying up to ten separate TV programmes each for 80 programmes total, calls for subscriber fees of NZ\$61 per month. Japanese sources say the complete home dish/digital receiver systems will retail for between NZ\$840 and \$1190.

Intelsat without dealing through local national signatory? **CTD** reported on the challenges facing anyone who might contract with Intelsat in our April 1994 issue, pointing out that for all users in New Zealand, they must go through signatory representative Telecom New Zealand International. That has always been the rule. Maybe not much longer. Bravo Eastern Europe Digital Network is now closing a direct contract with Intelsat and it has not dealt with British signatory British Telecom at all. The precedent setting arrangement could mean big savings to users here since Telecom (New Zealand) tacks 22% 'fees' on top of Intelsat rates plus adds expensive layer of bureaucracy and special requirements.

Unnamed 24 hour per day 'video clips of art' satellite delivered programme channel hopes to launch by end of this year in USA. Concept is to marry music to paintings, sculpture displays in 'MTV-like-format' to allow viewers to 'tour the world of art', on a subject by subject basis, or artist by artist basis, in a combination of relaxation and education. Here's the kicker. The service will be free to anyone with a home satellite dish in USA. No advertising, no pledge drives, no subscription fees charged. Just fine art and fine music, 24 hours a day without a hitch and no interruptions. Costs? A number of philanthropists, organised by founders of Adolph's Meat Tenderiser, are picking

**TV3 EXPANSION SCHEDULE - Information From TV3 and JDA Associates
AT SOUTH ISLAND LOCATIONS**

| TOWN/ Location | Target Date | New People | Channel/ Polarity |
|--------------------|----------------|---------------|----------------------|
| Mt. Robert- son | 2nd Qtr 95 | 2,022 | |
| Picton | 2nd Qtr 95 | 3,129 | |
| Mt. Camp- bell | 2nd Qtr 95 | 2,018 | |
| South- shore | 3rd Qtr 95 | 4,644 | |
| Sumner | 3rd Qtr 95 | 2,922 | |
| Cashmere | 3rd Qtr 95 | 1,134 | |
| Heathcote | 3rd Qtr 95 | 3,669 | |
| Lytleton | 3rd Qtr 95 | 3,894 | |
| Akaroa | 1st Qtr 96 | 603 | |
| Cheviot | 1st Qtr 96 | 954 | |
| Wallace Pk | 1st Qtr 96 | 1,260 | |
| Obelisk | Oct 1994 | 9,024 | |
| Cromwell | Nov 1994 | 2,733 | |
| Queens- bury | Dec 1994 | 120 | |
| Mt. Maude | Dec 1994 | 471 | |

| TOWN/ Location | Target Date | New People | Channel/ Polarity |
|----------------------|----------------|---------------|----------------------|
| Wanaka | Dec 1994 | 600 | |
| Coronet Pk | Nov 1994 | 507 | |
| Queens- town | Nov 1994 | 2,082 | |
| Peninsu- lar Hill | Nov 1994 | 1,809 | |
| Arrow- town | Dec 1994 | 876 | |
| Sunshine Bay | Dec 1994 | 450 | |
| Abbots- ford | 3rd Qtr 95 | 3,633 | |
| Dunedin District | 4th Qtr 95 | 4,719 | |
| Balclutha | 4th Qtr 95 | 3,729 | |
| Kuriwao | 4th Qtr 95 | 4,767 | |
| Tuatapere | 4th Qtr 95 | 1,083 | |
| Raven- bourne | 1st Qtr 96 | 1,620 | |
| Wingatui | 1st Qtr 96 | 1,668 | |

up the costs. Another new North American service with scheduled September 1 start: Film director Martin Scorsese plans to launch an "independent film channel" which will provide outlet for films and documentaries by "emerging film makers."

Britain's Cost-Of-Living index has celebrated its 80th birthday by re-evaluating the products and services that go into the monthly computation. Out: candles, mutton, and back-lacing corsets. In: condoms, camcorders and satellite dishes. Which suggests a Blackadder script: A lady dining on mutton while dressed in a back-lacing corset uses her camcorder to record herself placing a condom on a candle as she watches satellite television.

Cupid TV Network, distributed via satellite in US, is 24 hour home shopping channel that sells only "love and romance" products. The mind fairly boggles ...

DIGITAL TV

HDTV system tests are on the air at Charlotte, NC where field strength tests and component testing will continue through June. Field testing of over the air digital video transmission modes begins next.

Multimode digital video decoder chip, heart of new digital TV receiving systems, will be shipped in sample quantities before end of June. User/designer priced at NZ\$61, the C-Cube model CL9100 video decoder and companion CL9100 transport layer demultiplexer chip support MPEG-1, MPEG-2 simple profile, MPEG-2 main profile and (General Instruments) DigiCipher II protocols in NTSC, PAL and film formats. Let the revolution begin.

SKY NETWORK TV RECONFIGURING DECODERS FOR 'SKY-4' AND 'SKY-5'

SKY's IRD decoder supplier has begun shipping new pre-programmed format units effective with serial numbers 87xxxx and above. Under the new format, IRD units are factory programmed to include 'SKY-5' (the channel which SKY will share with TAB from later this year) and 'SKY-4' (their in-reserve channel with no announced start date). Until this change the TAB channel, where available, had to be 'search tuned' and set by the installer. The new pre-programmed format also includes pretuning for Max Music (Auckland) and installers in other areas are being told to use this position for locally available services (such as Geyser TV in Rotorua).

| PRE 87xxxx DECODERS | POST 87xxxx Decoders | SERVICE | FAVOURITE DESIGNATION |
|------------------------|----------------------|--------------------|--------------------------|
| FO / 51 | F0/49 | Music TV (ch. 49) | Favourite 0 |
| F1/12 | F1/12 | TV1 (ch.2) | Favourite 1 |
| F2/14 | F2/14 | TV2 (ch.4) | Favourite 2 |
| F3/17 | F3/17 | TV3 (ch.7) | Favourite 3 |
| F4/27 | F4/27 | SKY Movies (ch.27) | Favourite 4 |
| F5/31 | F5/31 | SKY Sports (ch.31) | Favourite 5 |
| F6/43 | F5/43 | SKY News (ch.43) | Favourite 6 |
| F7/51 | F7/51 | SKY '4' (ch. 51) | Favourite 7 |
| F8/31 | F8/55 | SKY/TAB (ch.55) | Favourite 8 |
| F9/43 | F9/59 | Community TV (59) | Favourite 9 |

Channelling shown in above table reflects Auckland (Waiatarua) layout; each region of the country would have its own channel numbers plugged-in although installers in regions outside of Auckland (or in Auckland where transmitters other than Waiatarua are used) will be required to set up IRD decoders individually to conform to this plan.

Japan's MUSE analogue HDTV system has thrown in 'white flag' and surrendered to onrush of digital HDTV (CTD:9403, p.22). Postal Ministry has established formal policy for fully developed HDTV digital technology by 1996.

Japan will spend NZ\$672B (not a typo) to create a full, national, fibre optic network. The plan is to bury the national grid under the roadways with all communication services, including television, to be transferred to the new system when complete. No time table has been announced.

MPEG royalties will be paid into a common pool established after meeting in Paris set 'rules.' Ultimate hardware designs using MPEG formats will involve multiple patents held by a variety of firms and individuals. Group formed to oversee setting up of royalty pool will next meet in September.

UK is expected to reach "final decision" concerning how best to operate parallel digital video and analogue video services during the transition period that will eliminate analogue by 2008 or sooner. The south and south-east of England is basically out of spectrum; there is no room left on the dial to allow the simultaneous operation of both formats during the transition phase. A fifth terrestrial service (Channel 5) was authorised but it too ran into the scarcity of frequencies problem. At best in the south and south-east, it would be limited to a pair of channels (35 and 37). Previously the two channels had been considered 'taboo' for terrestrial use since virtually every home VCR and satellite TV receiver "outputs" to TV sets using one of these two channels. Any analogue service using these channels would be faced with massive amounts of interference from home VCRs and STRs. For this reason Channel 5 was unlikely to reach more than 70-75% of UK residents. This has kept Channel 5 from moving ahead. Tests conducted by NTL and the ITC recently suggest that digital programme channels can be transmitted using channels 35 and 37 and that by using both channels strictly for digital transmission, BBC 1 and 2 and Channel 4 can be

**TV3 EXPANSION SCHEDULE -Information From TV3 and JDA Associates
AT NORTH ISLAND LOCATIONS**

| TOWN/ State | Target Date | New People | Channel/ Polarity |
|------------------------|----------------|---------------|----------------------|
| Warkworth | 2nd Qtr 95 | 2,231 | |
| Onetungi | 4th Qtr 95 | 793 | |
| Helensville | 1st Qtr 96 | 1,847 | |
| Ohope | 4th Qtr 95 | 1,077 | |
| Waimana | 1st Qtr 96 | 870 | |
| Wairoa | 3rd Qtr 95 | 6,219 | |
| Kairunga Hawkes Bay | 1st Qtr 96 | 1,191 | |

| TOWN/ State | Target Date | New People | Channel/ Polarity |
|----------------|----------------|---------------|----------------------|
| Mahoe | 3rd Qtr 95 | 2,685 | |
| Opunake | 3rd Qtr 95 | 2,787 | |
| Poutoko | 3rd Qtr 95 | 1,752 | |
| Pukeiti | 3rd Qtr 95 | 3,048 | |
| Raetihi | 2nd Qtr 95 | 1,197 | |
| Taihape | 2nd Qtr 95 | 2,079 | |
| Waiouru | 2nd Qtr 95 | 2,328 | |
| Popoiti | 4th Qtr 95 | 15,587 | |

simultaneously transmitted in digital while their analogue counterparts also continue to operate. Over time, as digital TV receivers/transcoders became more available, analogue TV transmissions would cease and this will free up plenty of spectrum space for an all digital TV service. But getting to that point from the present analogue-only situation is going to be difficult. British engineers and spectrum planners feel very much 'hemmed in' by the problem and without room to manoeuvre. They recognise they must somehow find room for the new digital transmissions, but also realise there is no good interim answer. A decision on the problem is expected by the end of June.

CONSUMER ELECTRONICS

Digital VCR 'standards' have now been approved by 50 separate VCR makers and this would appear to ensure that there will not be a 'standards battle' in the new generation digital VCR marketplace. The original eight firms pushing the single-standard concept (CTD:9309, p.16) have worked steadily to convince other manufacturers in field to adopt same standards. Restating from numerous prior CTD reports: Two tape cartridge sizes, both using metal evaporated 1/4"/6mm wide tape with smaller 60 minute cassette 63.5mm x 48.3mm x 12mm, larger 4.5 hour cassette 124mm x 76mm x 14.5mm. In HDTV mode, recording time will be cut in half. Further: sampling frequency for luminance is 13.5 MHz, video quantization 8 bits, video recording rate 25 Mbps following bit rate reduction; audio will be 2-channel (48 kHz, 18 bits) or 4-channel (32 kHz, 12 bits) which is the same as DAT format. The tape speed for 50 hertz powered systems is 18.831 mm per second. Optional (each manufacturer decides) features in standards include IC memory which will store a table of contents for each tape showing recording date, programme title and other user entered information.

Philips has announced it will market its first digital standard consumer camcorder in March-April 1996 with price near NZ\$3500.

ESP Electronics (Los Angeles) may change the way the world views television. Every TV set ever produced requires that viewer(s) be in front of screen grouped into relatively narrow region before screen. ESP's new "360 degree optical technology" TV sets, in 27 and 32" / 686-813mm screens, can be viewed from any angle. Place the TV set in the middle of a room, and walk around the set in 360 degree circle. You always see the same properly proportioned, "looking right at you" image no matter where you are located. The picture remains "perfectly symmetrical and squared off with each viewer's location" at all times. The TV set's shape is a cylinder and all of the non-display electronics are housed separately from the cylinder screen through a wireless link.

Downloading a 100 minute movie in 5 minutes to a home VCR? It just happened. EMC-Cubed, a Los Angeles firm, has functional time-compressed digital system that it says functions through satellite TV or telephone lines, or via satellite delivery. A customer orders a film (or any other on-video material) and EMC-Cubed transmits the

Japan's EIAJ forecasts the sale of consumer electronic items by category each year. Here are this year's forecast of growth in **Oceania**, including New Zealand. New Zealand's 1993 imports amounted to 20.2% of colour TV's forecast for 1994, 16.6% of VCRs, 16.4% of camcorders, 11.0% of CD players.

OCEANIA TOTALS

| | COLOUR TV | VCR | CAM- CORDER | LASER DISC | CD PLAYER | CAR STEREO | AUDIO R'CRDER |
|-----------------|--------------|---------|----------------|---------------|--------------|---------------|------------------|
| YEAR/'94 | 1,010,000 | 642,000 | 140,000 | 12,000 | 465,000 | 987,000 | 3,950,000 |
| YEAR/'98 | 1,230,000 | 720,000 | 170,000 | 20,000 | 495,000 | 987,000 | 4,030,000 |
| 93-98 Change | +4.9% | +3.0% | +5.2% | +14.9% | +1.9% | +0.2% | +0.5% |
| 88-93 Change | +2.7% | +1.6% | +14.9% | +58.5% | +12.9% | +1.2% | +4.0% |

material to the user's (specially featured) VCR in 5% of the actual run time. Degradation? None. Costs? If you take a standard VCR and modify it to handle super-fast 20 to 1 recording, an additional NZ\$438 is added to the VCR cost. Users? EMC-Cubed plans mid-1995 start when it will offer movie rentals to people equipped with an appropriate VCR for NZ\$5.70 per movie. The movie can be played two times on the VCR, then an automatic erase feature wipes the tape clean. A form of Macrovision encoding is used on the tape to reduce the opportunity for renters to make illegal duplicates of the taped material. EMC-Cubed reports they have signed agreements with Goldstar, Hitachi, Samsung and Sharp to date to manufacture the special VCR decks.

LCD with high definition resolution, 510,000 dots on 1.35" / 34mm screen, by Sony is scheduled for use in projection TV or scientific medical display systems. The new high definition device has upwards of 4.6 times as many "dots" and therefore markedly superior resolution powers to existing LCD displays. Price of first units shipped is NZ\$2,187 so you better not drop yours on the pavement.

VHS-C and 8mm camcorder formats are in tight race for 'most popular' title after 8mm has been clear leader worldwide for several years. JVC has announced 4 new VHS-C models to capitalise on the unexpected strength of C format tape this year. Canon has assured dealers it is staying in camcorder market, showing new line of 8mm units. Magnavox (in U.S., Philips 'brand name') has dropped 8mm in favour of exclusively VHS-C, blaming "high return rates from consumers trying to play them (8mm tapes) in VHS VCRs."

"Most accurate clock in the house" is how Sony describes new VCR models that capture 0.001 second accuracy time signals from vertical blanking interval (VBI) transmissions now carried by many US TV stations. The VCR checks the current time from the VBI each time VCR is switched on, automatically resets the clock on VCR.

"Sports Review" is market name given to Fisher and Sanyo VCR feature to be available later this year on 4-head hi-fi models. When user directs tape to fast forward or rewind the audio portion of the tape continues for 3 second period past tape-play stop. The answer is "another 'magic chip'."

Fujitsu has shown second generation "plasma TV" which uses radical screen technology to compress display screen thickness to 6.1cm. But it won't be inexpensive; 21"/533mm view screen will have list price near NZ\$13,475.

Matsushita's 14"/355mm beam matrix thin TV (CTD: 9309,p.17) that is 9.9cm thick is not setting any sales records. Firm planned to produce 3,000 units per month with NZ\$4,800 price; has only been able to sell average of 1,000 each month.

JVC is entering vehicle navigation market in June (Japan only at first). 'Multinavigator' uses GPS (satellites) to pinpoint vehicle location within 30m and translates that information to LCD screen married to CD held route maps. User sees where vehicle is in real time, follows on screen map to destination. JVC's unit will sell for approximately NZ\$3,500 and includes built-in player ability for audio CDs, CD+G discs and CD-I titles. If you get lost you can pull over and watch a CD movie on the display screen.

Matsushita begins retailing 3DO interactive (game) system in UK in September. In US, sales base is expanding with discount houses Circuit City and Wal-Mart taking on unit this month.

TV3 EXPANSION SCHEDULE / Information from TV3 and JDA Associates
ADDITIONAL NORTH ISLAND LOCATIONS

NORTHLAND REGION

| TOWN/ Site | Target Date | New People | Channel / Polarity |
|------------------|-----------------|---------------|--------------------------|
| Hikurangi | Oct.94 | 21,951 | |
| KeriKeri | Nov.94 | 3,657 | |
| Maungataniwha | Nov.94 | 14,346 | |
| Ahipara | Dec.94 | 1,420 | |
| Man-gonui | Dec.94 | 1,205 | |
| Kawakawa | 4th Qtr 1995 | 1,946 | |
| Mangawhai Hds | 4th Qtr 1995 | 764 | |
| Ngun-guru | Dec.94 | 1,073 | |

COROMANDEL/WAIKATO

| TOWN/ Site | Target Date | New People | Channel/ Polarity |
|---------------|----------------|---------------|----------------------|
| Maungatawhiri | Dec.94 | 3,394 | |
| Tiarua | Dec.94 | 1,510 | |
| Whangamata | Dec.94 | 3,343 | |
| Huntly | 2nd Q 95 | 7,991 | |
| Raglan | 2nd Q 95 | 3,009 | |
| Taumanui | 2nd Q 95 | 7,952 | |
| Waihi | 2nd Q 95 | 5,695 | |
| Miranda | 4th Q 95 | 1,533 | |
| Cor.Harb. | 4th Q 95 | 729 | |
| Mangakakino | 1st Q 96 | 1,746 | |

Sony has cut pricing on 3" LCD 'SNAP' camcorder NZ\$350 to new suggested selling price of NZ\$1400. The unit has a built-in speaker, wireless remote control, flying erase heads.

Philips will drop CD-I player technology entry level price to NZ\$524 in USA 'later this year.' New model of CD-I is top-loading, will handle digital video cartridge (additional NZ\$437), has remote control and is redesigned to allow two players to simultaneously play games.

Daewoo is requesting patents in 15 countries for new picture tube technology which they claim reduces X-ray emissions by 50%. Process coats CRT face plate with mixture of iron oxide and zinc oxide which absorbs potentially harmful gamma, ultraviolet, infrared and X rays.

China is restructuring its regional consumer electronic manufacturing plants into 'global' competitors. Eight firms have been selected to become global factories and several new global marketing/manufacturing firms are being formed to deal in emerging HDTV, digital VCR, digital mobile telecom fields. Chinese statistics report first quarter TV set production was up 8.94% over same 1993 period; 7 million sets.

USA consumer electronic sales in first quarter of year were led by record setting sales of camcorders and projection television sets. Camcorders are up 13.8% from year ago, projection TV's up more than 32%. New Zealand statistics for last complete month (March 1994) released by Statistics New Zealand on page 30 here. In February, Japanese VCRs imported into USA fell from number one to number two position behind Malaysian source units. In Japan, widescreen TV set sales are up more than 600% from year ago causing significant shortage of 16:9 picture tubes.

US government is funding research into flat panel video screens with sizeable grants to numerous R & D firms. Reason? Military uses for flat panel displays and current LCD and CRT technology is considered significant deterrent to truly big screen interactive displays. With money going into project through numerous firms, US hopes

to unlock secrets of huge wall-sized flat panel displays for video of the future. Among recent grants: US\$975,000 to SI Diamond Technology working on diamond based thin film technology; US\$120m is planned to go to IBM, AT&T, Xerox and Motorola to assist each in building new manufacturing facilities to build high volume flat panel display plants. Micron Display Technology, one of firms funded, reports it has field emission display (FED) video rate resolution of 700 pixels per inch. Under terms of US government funding, individual firms are working on unrelated technologies to determine which holds the most promise for future computer/TV/defence applications and each firm is free to take their developments into commercial realm after fulfilling defence contract commitments.

Projection TV / big screen direct view TV representative pricing in USA in last 30 days (all prices are manufacturer list, actual retail pricing may be up to 15% lower): JVC 35" / 889mm direct view at US\$2,000; JVC 55"/1397mm projection with 16:9 screen and circuits at US\$4,500. Toshiba 56" / 1422mm 16:9 wide screen at US\$4,995. Philips / Magnavox 46" / 1168mm at US\$1,999, 53" / 1346mm at US\$2,899. Mitsubishi is now calling itself "The Big Screen Company" in advertising and offering 40"/1016mm direct view set at US\$2,999. Hitachi has 35" / 889mm direct view sets that begin at US\$1,599.

JVC has closed major (Hokota) Japan VHS and 8mm videotape plant, will import approximately 1,000,000 tape cassettes per month back to Japan from US plant. It has been suggested JVC will convert the Hokota plant to manufacture the new digital video format tape in time for the expected release in January-March 1995 of first DVR units.

Italy is "worst video piracy offender" in world according to Motion Picture Association of America (MPAA). Next worst is Japan followed by Saudi Arabia, Greece, Germany, Spain, China and India. This is one list New Zealand avoided.

CABLE/FIBRE TV

KIWI CABLE TV, Paraparaumu, claims 'everything is in place' for a sizeable expansion further north along the coast to Wanganui using recently received shipments of fibre optic cable. A feature report appearing in the Listener (April 23-29) reported the company plans to spend NZ\$5.2m this year, another \$9.6m next year to extend their (present) 15 channel service into that community where they hope to be in front of 48,000 additional homes. Kiwi Cable founder Tony Goodman told CTD *"We plan to install 2,000km of fibre optic cable by the end of 1995."* The numbers, however, may not add up. A similar project involving NZ\$40m in materials and labour by Clear and BCL will build approximately 800km of new plant. In the Clear expansion, NZ\$14m is going into Australian made Pirelli (fibre optic) cable alone (the rest being electronics and labour). In the US, cable television systems placing new fibre optic cable on-top-of their existing analogue plants are typically averaging around NZ\$2800 per kilometre in costs. A stand-alone fibre optic run averages around NZ\$3700 per kilometre. From Paraparaumu up highway 1 to Wanganui is a 90 kilometre run, passing through a number of communities (including Levin) where the system will be able to offer service to additional homes. So in fact Goodman's allocation of 2,000 kilometres of 'fibre optic cable' for the expansion is more probably a combination of traditional coaxial cable plus fibre with fibre used primarily between communities up highway 1 and to 'hub sites' in towns such as Levin (see our **TECH BULLETIN 9305** for December 1993 and **9401** for January 1994). If the system expansion does go before 48,000 homes, it will be a 100 fold increase beyond their present 500 customers in Paraparaumu and seriously challenge Telecom's relatively insignificant 600 home 'trial test' in Auckland suburbs New Lynn and Pakuranga for intent. On the basis of 48,000 homes (their number) and 2,000km of 'cable/fibre plant' we have 24 homes per kilometre; a 'marginal CATV system' in the hard world of cable finance. With \$14.8m (their number) to be invested before the end of 1995, the system going-in cost is \$308.33 per 'potential home' and NZ\$7,400 per kilometre for the cable plant. Traditional cable economics would judge the potential home cost close to worldwide averages but the cost per kilometre for an aboveground (aerial cable) plant high by around 40%. On the other hand, if these costs also include in-home set-top cable converters, then the numbers would be 'low' on a worldwide comparison basis. Kiwi Cable's now under construction coaxial cable underground extensions are typically inside of 50 and 100 mm (plastic) conduit which will allow fibre optic lines to be 'pulled in' at a future date along side of the present coaxial cable. If nothing else, Kiwi Cable continues to attract major news media interest and possibly a recent infusion of new investment capital as well.

KIWI Cable has made application to the Copyright Tribunal requesting a hearing over SKY's refusal to allow the cable firm to carry ESPN programming. The case, when and if heard by the Tribunal, has all of the earmarks of becoming precedent setting for the young cable TV industry here. At issue is whether SKY Networks can have an exclusive contract with sports programming service ESPN and prevent others such as Kiwi Cable from also

contracting for ESPN service within New Zealand. Kiwi Cable has sought a contract with ESPN for approximately 3 years. SKY has blocked that move by displaying its 'exclusive contract' for the ESPN service. The case is further muddled by ESPN holding a very minor (0.04%) stake in SKY. The history is as follows: KIWI Cable, owned by an American firm, sought contractual rights with ESPN through business relations that Kiwi Cable's US owners already conduct with ESPN elsewhere. When SKY became aware of the application from Kiwi Cable, they accelerated plans to provide SKY off-air in the Paraparaumu region and contracted with BCL to install the necessary three TV transmitters at Ngarara. SKY did this apparently on advice of counsel who, after reviewing the New Zealand Copyright law (1962), interpreted that SKY's exclusive deal with ESPN was only valid in an area where SKY actually made its service available. Kiwi Cable meanwhile sought outside opinion as well, and three separate New Zealand law firms provided three different, although similar, interpretations. These advisers believe that under the 1962 law SKY may have the 'right' to be the exclusive 'agent' for ESPN here, but they cannot deny service to another party willing to pay the market rate for the service. Kiwi Cable says it is willing to pay market rate for ESPN. However, even that point is muddled because the SKY Sports service as transmitted here is not only ESPN; it is the amalgamation of many sources of which ESPN is but one. Kiwi Cable believes this point strengthens their position; that while they might be willing to contract with SKY for the SKY sports service (for carriage on Kiwi Cable), they would also be equally interested in carrying the ESPN service direct-from-satellite. ESPN and SKY are both 24 hours per day; in recent weeks SKY and ESPN 'have been in parallel' (i.e., broadcasting the same programme at the same time) for as little as 60% of the 24 hour day. This, Kiwi Cable believes, weakens SKY's refusal to allow Kiwi Cable to carry ESPN since in a sample week 40% of the programming day is not 'duplicating' SKY at all. However, it has been a 'side deal' at SKY which may prove most difficult for SKY. When Telecom New Zealand designed their programming structure for the fibre optic cable TV trials in New Lynn and Pakuranga, SKY agreed to provide two 'cable only' service channels. One of these is CNN, as it comes directly from satellite. The second is ESPN, as it comes direct from satellite. So SKY itself, through its relationship with Telecom's fibre optic trial, is selling ESPN direct (without modification as it does to SKY Sports channel) to cable subscribers. To Kiwi Cable this sounds very much like the arrangement they believe they want for Paraparaumu although SKY maintains the Telecom use of their ESPN (and CNN) direct services is merely a 'corporate pass through' and not an actual "resale" of either service. They take this position because Telecom and Sky share several common stockholders. All of this has ended up before the New Zealand Copyright Tribunal, a 'desk' within the Department of Justice. The Tribunal has not sat in formal session since 1986. A preliminary meeting was scheduled for May 16. On May 14 the session was postponed, "to at least June" and additional delays are possible. Personnel at the Justice Department believe the delayed meeting will deal only with procedural matters and, significantly, no decision has yet been made by Justice as to whether the Tribunal even has the power to hear this issue. Off the record, there is an undercurrent of opinion within Justice that perhaps a revision in the New Zealand Copyright Law (scheduled for late this year, early next) would straighten this situation out. However, personnel now drafting the revised copyright act will not discuss the matter nor give any clues how a revision might deal with this issue. SKY hopes for one of two outcomes: That the tribunal will decide it does not have jurisdiction, in which case it considers the decision a victory for SKY, or, after a hearing that SKY is within its rights to refuse to deal with firms its considers competitors. Kiwi Cable's Todd Klindworth believes this situation of great importance to the future of his cable system suggesting, "Without a viable sports channel, cable here is difficult to sell." Using a 16 metre dish (the largest privately owned satellite dish in the southern hemisphere) Kiwi Cable has repeatedly tried to produce cable-quality reception from other satellite delivered sporting services including Murdoch's SKY Sports. Now the venue shifts to the copyright tribunal.

BCL 'trial cable TV' system in Whitby portion of Wellington is reported functional. BCL began planning for system one year ago, sent *Russell Lowther* to attend industry trade conference in US last July, and he inspected 'small, traditional' cable systems in Florida and Pennsylvania at that time. BCL has required Network Operator status for cable TV, but had to obtain permission (Resource Management Consent) for cable routing and antenna site from district planning authorities. BCL has identified a number of areas in and about Wellington, other markets where pockets of 25 to 250 homes remain without adequate off-air TV reception, and where traditional translators would be too expensive (or for which no VHF channels are available). BCL planned a system around 450 MHz Jerrold (GI) amplifiers, traditional coaxial cable, Phasecom (Israeli) headend processing equipment. NICAM stereo was a challenge as few North American manufactured headend units would process our NICAM format. Lowther viewed first Whitby system as a 'test' to acquaint BCL with technology, practical cable operational problems. Additional expansions are now being planned but the system purposely is keeping low profile as BCL explores the technology and Lowther (plus four other TVNZ/BCL employees) are attending the (US) National Cable Television annual

convention as you read this report. Lowther continues his study of US cable operations while offshore, not returning to BCL offices in Wellington until July 4.

Australian Telecom 'pilot' Asymmetrical Digital Subscriber Line (CTD: 9309, p.2) project will use Digital Equipment Corporation interactive video and information servers. The hardware/software will allow video on demand to individual subscriber homes, as well as management of billing, marketing and customer profiles. The same DEC equipment is being used in US tests by USA Video, US West, Nynex. DEC reported the equipment will be field tested in Melbourne "early in 1995."

Australis Media Ltd. is in new partnership with US cable operator TCI to produce pay television subscription channels in Australia. Liberty Media, a film production and distribution company largely owned by TCI, will be the operating entity with the Australian group. Australia's CTS (CTD: 9404, p.19) had previously announced plans for pay per view and movie subscription channels on cable system set to begin operation this winter in Sydney suburbs.

New Zealand Telecom investor Ameritech has selected Scientific Atlanta to supply NZ\$525m in video dial tone hardware over a six year period. Ameritech operates telephone systems in the US midwest, centred on Chicago, and plans to convert the copper wire systems to fibre optics over next six years.

Portugal's government has announced an expenditure of NZ\$588m over the next five years to bring 30 channels of cable TV to an estimated 2,000,000 homes at a planned monthly cost of NZ\$28.

US cable operator Time Warner (parent of HBO) will join with (US) telephone company US West, Japan's Toshiba and Itochu to construct a network of ten cable television systems in Japan that will reach 2,000,000 homes. The projected expenditure is NZ\$665m.

Hong Kong's Wharf Cable has attracted 30,000 subscribers to the 8 channel service during the first six months of operation. BBC WSTV, off Star TV since April, was scheduled to find a 4 hour slot on a new Wharf multilingual channel May 23rd.

Mitsui of Japan has invested NZ\$3.4m in Goldson Communications Taiwanese cable TV firm; 10% of company.

China has followed its October ruling banning private satellite dishes with a new regulation that prohibits foreign investment firms from owning any portion of cable television systems in the country. In recent months non-Chinese investors, many from Taiwan, have been investing in and building cable TV systems inside China. China has contracted with US telephone firm Nynex (New York telephone) to provide technical expertise for its young cable TV industry.

TCI in Chicago suburb Mt. Prospect is now testing 124 channel "Intelligent TV" service with 8,000 test subscriber homes. The 12 month long test allows viewers to select virtually any programme they wish from a library of tens of thousands including programming that appeared only hours or days previously on regular cable service. The viewers also have access to 24 channels of movies that start at 15 minute intervals and the usual list of normal (well, 'normal' for US cable) channels.

Bell Atlantic is equipping 172,000 square foot facility in Reston, Virginia as "international multimedia production centre." The new facility will provide state-of-the-art hardware/software to programme producers wishing to originate new television in the digital mode, or translate existing analogue programming to digital. BA plans to rapidly digitise movies at the facility as it prepares to debut all digital cable-telco Stargazer network in Washington suburbs early in 1995.

Major US financial analyst firm in telecommunications area is warning investors that usually blue-chip telephone company stocks (such as Bell Atlantic) may be poor choice for at least next two to five years. Report believes telephone companies are going to be accumulators of major indebtedness as they expand from "*copper wire to fibre optic*" digital world. "*Loss of market share*" the report warns, "*as cable TV systems equip for fibre optic world will have major bottom line effect.*" Bell Atlantic's Raymond Smith response: "*The vulnerability of the telephone companies is greatly overstated.*" In Rochester, New York, the regulatory agency governing cable and telephone industries has agreed to allow each industry to compete with the other. On this announcement, local cable operator Warner cable stock rose 7% and local telephone operator stock dropped 5%.

Time Warner Chairman Gerald Levin has forecast that within 10 years, 50% of all telephone calls will not be made on conventional wire links. He also forecast that 20% of all catalogue sales will be through interactive television, and 50% of all home movie rental will be totally electronic with no actual 'cartridge' in the hands of the renting public.

ESPN and Prodigy have formed partnership to produce a 'multimedia sports network.' The Prodigy delivered service, available throughout US via telephone modems to computers, will include near-real time scores from the 'world of sports,' box scores and game reports, sporting world commentaries, sports news and a host of user

participation 'windows' including sports trivia quizzes, bulletin boards, sport still photos, polling, and contests. In the second phase, the service will incorporate live sound reports from sporting venues world-wide as well as viewer controlled full motion video. All the sports news from all over the world, all the time, to anyplace in the world with a telephone connection; for a fee.

USA cable TV growth rate in 1993 was 3.5%, up from 2.9% growth in 1992. During April audience measurement period, 'basic cable' services audiences shot up 6% from previous April while at same time major US network viewing (ABC, CBS and NBC) dropped by 6%. Basic cable had 22.0% of total viewing audience, networks 30.8%. Most popular basic cable programmers were USA Network (2.4%), Super Station TBS (2.2%), TNT (1.6%) and ESPN (1.5%).

US plan to build information super highway (officially called the 'National Information Infrastructure'; NII) has drawn opposition from Hughes Electronics CEO. Citing anticipated costs in excess of NZ\$525B to modernise the existing telephone-cable systems to fibre optic quality, Hughes claims satellites could do the same job, "*better, faster and cheaper*" without the 20 to 30 year "*build time*" required for the fibre optic project.

UK cable/telephone service continues to grow at very rapid rate (CTD: 9312,p.28). Latest numbers: 376,000 telephone lines installed (against 143,000 year ago) of which 40,262 lines are business service.

TERRESTRIAL BROADCASTING

TV3 's 61 new transmission sites will reach an additional 195,000 New Zealanders. The 'final expansion' plan was announced on April 28 following months of intensive negotiations between the TV broadcaster and NZOA. The press releases claim \$5m will be spent in the expansion of which NZOA is putting up approximately \$4m. One year ago TV3's engineering consulting firm JDA Associates was proposing just over \$16m be spent to complete the coverage of New Zealand. Negotiations through November dropped their cost estimate to approximately \$12m and NZOA's position was they would be willing to pay up to \$1.2m of that cost. TV3 had originally proposed approximately 160 new transmission sites, later dropped that to 120 sites. The final decision halved that number again to 61. TV3 claims they will begin installations almost immediately (see separate list here) and they plan to be completed by the first quarter 1996. In the last expansion (1993) TV3 claimed it was spending around \$2m to reach an additional 207,951 people through 14 new transmission sites.

TV3 expansion will leave the commercial service with a claimed 96% coverage of New Zealand's potential TV viewers and 124 transmitter sites (against 422 dual-channel sites for TV1 and 2). New Zealand On Air, as a part of their funding agreement, was able to extract from TV3 a 'promise' that the commercial network would be more co-operative with 'self-help' groups located where the final 4% of New Zealanders live (i.e., typically where TV1 and 2 will operate translators that have no TV3 counterpart). According to NZOA, TV3 has agreed to accept (a) UHF as a rebroadcast channel (a significant change from their previous 'VHF only' stance; see CTD January 1994, issue 9401), (b) knife-edge refraction paths where they exist to feed translators, and, (c) provide engineering planning and licensing assistance (at TV3 expense) as well as assuming annual translator maintenance for those sites funded through self-help projects. Equally important for people who live in TV3 unserved areas after the final expansion is completed, NZOA will contribute \$100 per broadcast licence fee paying family as a 'one-off' assist in paying for the construction of the self-help translators. An area with 100 broadcast licence fee paying families, for example, will be entitled to \$100 x 100 or \$10,000 to assist in the translator unit's initial funding. VHF translators typically cost around \$25,000 for a 10-25 watt unit although some have been self-help-assembled for as little as \$5,000. The procedure is as follows: First, a recognised 'community group' (not individuals) should contact TV3's Gerry Smith (Director of Engineering & Operations, TV3 Network Services Ltd, Private Bag 92624, Symonds St., Auckland: Tel: 09-377-9730, FAX: 09-366-5991) for assistance in feasibility and cost estimates. When you have the TV3 portion sorted out, written applications go to NZOA (Chris Prowse, New Zealand On Air, P.O. Box 9744, Wellington: Tel 04-382-9524; FAX: 04-382-9546). The applications must include a copy of the TV3 approval, a proposed budget showing detailed costs, the amount of NZOA subsidy you request, and a map that outlines the area to be served showing the population of the region. NZOA's response will verify the exact amount of financial 'one-off' assistance approved. When all of this is approved, NZOA will reimburse the 'community group' after the installation is completed, up to \$100 per annual licence fee paying family, against the submission of a detailed showing of actual construction costs backed up with supplier invoices. After the installation, TV3 will subsidise annual operating costs to a maximum annual amount of \$3 per person served for a five year period. In this scheme, TV3 will hold the licence for all such units whether they are VHF or UHF channels. One ripple effect of the TV3 expansion; BCL will supply the transmission sites and technical installation of the new transmitters. This TVNZ owned subsidiary is now

hiring back many of their past personnel on fixed term projects to do these installations, personnel who had previously been made redundant in BCL down sizing.

TV3 and New Zealand On Air were very thorough in distributing 'press kits' to newspapers and community leaders in the newly affected areas. Most of the press response was favourable but the West Coast of South Island including Buller headlined "*Coast Forgotten In TV3 Extension Funding*" with Grey District mayor *Ron Hibbs* reported as stating, "*Once again the West Coast has been slapped in the face. It appalls me that our region has again been treated as substandard and that New Zealand On Air could make such a decision without consultation with the residents of the region. The offer of a \$100 subsidy is an insult.* "

TV3's Gerry Smith is now describing Hokitika channel 11 relay (CTD:9311, p.31 and 9312, p.34) pictures as "*pretty scruffy.*" Smith's handling of TV3 participation in the community funded transmitter continues to receive uneven reviews from residents in the region and the decision to limit coverage through skewing of the transmitter signal away from communities further up-coast (including Greymouth) has not been popular. Smith is quoted in a Greymouth newspaper interview as exploring the use of a fibre-optic cable owned by Telecom to bring the TV3 signal into the Greymouth region. Greymouth's support of a community self-help translator was positive until mid April, then public support swung away from the community translator when cable operator PacSat launched a public relations campaign pushing their own service.

TV1 is not without coverage problems. In the Taranaki region, a transmitter at Opunake (channel 5) used to feed TV1 to a second relay at 'Aurora Road' has not worked out as TVNZ had hoped. The Aurora Road site is experiencing co-channel interference originating in the Nelson region when 'unfavourable weather conditions' cause the Nelson signals to arrive at the relay point with sufficient strength to wipe out the TV1 signal from Opunake.

OMI-GOD, the PC-friendly software programme that allows piracy of the Videocrypt scrambled Sky (Europe) TV service, appeared on a European computer bulletin board service on May 1st. The much anticipated programme (CTD: 9404,p.29 & 36) has been reviewed by at least one Australian source but it is not known to have been 'bulletin board posted' in New Zealand at this time. SKY's John Fellet continues to be assured by the security heads at Videocrypt 'central' (NDC in the UK) "*Your series of cards and the algorithm that is used for your variation of Videocrypt has not been breached.*" NDC has admitted that their security was breached "*on a certain batch of cards*" claiming the cards were released into the marketplace "*before being zipped up;*" an insider phrase that describes a final security-locking process all cards go through before being shipped. NDC lays the blame for this 'oversight' on personnel at supplier Motorola and promises SKY here that steps have been taken to avoid the shipment of "unzipped cards" in the future.

UPDATE of April CTD regarding new Ministry of Commerce policies. VHF channel use by other than TVNZ and TV3: A VHF channel 5 'pirate station' operating in the Timaru region relaying CTV for its TAB coverage remains operational. This 'station' prompted a review of MOC policy that presently limits VHF channel licences to TVNZ or TV3. Progress on this issue is temporarily stalled because of TV3 plans to expand service by 61 new transmitters. MOC believes this plan will go ahead regardless of TV3 needs and they expect to be able to allow VHF licences to 'third parties' under an arrangement where TV3 will not be able to hold up new private licences merely on pretence of needing a certain channel in a specific area for 'future expansion.' Under the plan, a third party would be licensed for a VHF channel and would continue using that channel until TV3 (or TVNZ) can 'prove' a need for the channel at some future date. If neither TVNZ nor TV3 ever need the channel, the third party would continue to use it indefinitely. On Channel (0.5 watt) Boosters: A 'trial license form' is being drafted at this time. The only sticking point is copyright. The Ministry does not wish to be forced into a position of acting as 'copyright policeman' for primary broadcasters. On-channel Booster operators will be 'put on notice' they must have the permission of the 'programme originator' to operate but enforcement of copyright will not become part of the Ministry of Commerce's activities. VHF channel boosters will be treated separately from UHF because of concerns for interference and the VHF Management Rights scheme now in process.

VHF Management Rights programme, to sell off rights to 7 MHz frequency blocks to TVNZ and TV3 (see CTD 9401: January, page 2), may require new legislation. Because band I channels (channels 1, 2 and 3) are shared with 'Defence' and other government agencies, as well as in limited areas with additional users, the Ministry of Commerce may ask for special 'clarification legislation' through Parliament before concluding the sale of VHF channels. Band I spectrum space was never intended to be exclusively for a single 'service' (such as TV broadcasting) and the 'history' of licensing between 40 and 80 MHz creates a patchwork quilt of policies which MOC fears could 'conflict' with out and out sale of channel spectrum space to TVNZ and TV3. MOC wants to avoid later court challenges to the validity

of its band I channel 'sales' and is considering legislation that will do this. A delay in implementation of the VHF Management Rights programme could be the result.

TV3 is one of five national TV services now partnered with Quantum International, Ltd., a company that contracts for 'air time' to play its "Infomercial" programmes. Infomercials are programme-length commercial advertisements packaged like entertainment programming and typically run in hours when TV audiences are small (such as 7AM on Sunday or 2AM on Monday). Products advertised typically are serviced through telephone ordering networks allowing viewers to immediately order a product by using a credit card. Singapore's SBC jointly produces two hours daily with Quantum for play there while TV3 originally contracted to license the service for 3 hours per week.

John Fellet, CEO for New Zealand SKY Network TV, is delivering paper to National Cable Television Association annual convention in New Orleans as you read this. SKY service here is attracting worldwide interest because of its rapid uptake in subscribers and high penetration rates. SKY had 143,467 subscribers as of May 14.

European Union has adopted controversial "Green Paper" as basis for June discussion concerning total revamp of Europe-wide audio/visual/film industries. Major European players led by the French want European industries placed on "even footing" with other international competitors, and are especially concerned with inroads made by American programming through terrestrial and satellite delivery services. The Green Paper suggests ways for the EU to recycle national levies now collected within each country as "*massive infusion of subsidies to ailing TV and film producers.*"

American public radio network NPR (National Public Radio), now distributed to Europe via Astra satellite, ran into unfriendly European broadcaster objections during April when annual NPR 'fund raising drive' drew pledges of financial support from European listeners. The concept of voluntarily supporting a public radio system rather than being forced to pay annual listener 'tax' was a novel one to many European listeners.

American TV programme sales to Asian countries is booming; up from NZ\$138m in 1992 to projected NZ\$352m this year and rising to forecast NZ\$1,442m in 1997. In 1994, South Korea is largest buyer purchasing approximately 51% of all programmes sold, followed by Taiwan and Hong Kong.

American TV network CBS, which lost bidding war with upstart rival Fox for rights to important NFL gridiron telecasts in 1994-1995 season, wants to create new rival professional (American) football league using corporate sponsors rather than city franchises. Fox, meanwhile, is packaging games for distribution worldwide and is planning to offer multiple-Sunday (North America) events through satellite distribution to viewers global; for a fee. Inside USA, NFL itself has retained satellite distribution rights to telecasts and is offering them to home dish owners for 'season-ticket' price of NZ\$175 and to sports bars and other commercial establishments on scale that slides upwards from NZ\$1,225. Significantly, the in-home and in-clubs service will also be available to anyone who is within footprint-range of Telestar 303 satellite (123 west) with a specific marketing effort to be made to sell users in Canada, Mexico, Caribbean and northern South America. In theory, a 10 metre dish in New Zealand equipped with the right equipment might "do the job" (see chart appearing here, page 16).

Malaysian state broadcaster RTM has cut off BBC world service TV (WSTV) from Malaysian market. BBC programming was previously used by RTM who were editing BBC feeds to serve their own political purpose. BBC objected; RTM said "good bye."

-MARCH 1994/YEAR TO DATE CONSUMER ELECTRONIC IMPORTS-

Electronic imports for first quarter are running below 1993 average per-unit-costs for CD players (\$255.78 versus \$261.31 1993) and VCRs (\$444.63 vs. \$478.82). Camcorders are running above 1993 (\$1,240.40 vs. \$1,224.96) as are colour TVs (\$516.55 vs. \$514.58). % of 1993 thru March indicates 1994 imports vs. 1993 totals.

| | MAR IMPORTS | FEB IMPORTS | YEAR TO DATE | 1994 AVG COST | MAR AVG COST | % of 1993 thru MAR |
|-------------------|----------------|----------------|-----------------|------------------|-----------------|-----------------------|
| CD Players | 3,788 | 2,984 | 8,335 | \$255.78 | \$249.16 | 16.27% |
| VCRs | 8,766 | 10,199 | 22,042 | \$444.63 | \$478.82 | 20.64% |
| Camcorders | 2,136 | 1,504 | 5,173 | \$1,240.40 | \$1,262.35 | 22.55% |
| Colour TVs | 25,894 | 21,924 | 64,037 | \$516.55 | \$519.44 | 31.39% |